IN THE CLAIMS:

1. (currently amended) A system for delivering a charged molecule into a ~~target~~ cell in vivo ~~constituent of a tissue~~ comprising:

an apparatus for ~~introducing~~ positioning a charged molecule outside and generally adjacent the cell in vivo, wherein the cell compirses a constituent of a tissue ~~into a tissue interstitial space adjacent a target cell~~;

an apparatus for delivering ~~an~~ a first electromagnetic pulse to the ~~tissue~~ cell having a strength and duration insufficient to cause electroporation of the cell and sufficient to cause an electromigration of the molecule toward the cell; and

an apparatus for delivering a second electromagnetic pulse to the cell having a strength and duration sufficient to cause electroporation of the cell, wherein at least one of the first pulse and the second pulse comprises an exponentially rising component.

~~for regulating a duration and a strength of the delivered pulse, the strength up to at least an amount sufficient to cause electroporation in the target cell.~~

2. (currently amended) The system recited in Claim 1, wherein the ~~delivering~~ an apparatus for delivering the pulses further comprises a pair of electrodes with opposite polarity and positionable in spaced-apart relation from each other, the pair of electrodes positionable adjacent the tissue.

3. (new) The system recited in Claim 1, wherein the apparatus for positioning a charged molecule further comprises an apparatus for delivering the molecule into an interstitial space adjacent the cell.

4. (new) The system recited in Claim 2, wherein the first pulse has a field strength in a range of 1 to 2000V/cm.

5. (new) The system recited in Claim 2, wherein the second pulse has a field strength in a range of 50 to 10,000V/cm.

6. (new) The system recited in Claim 2, wherein the second pulse has a pulse duration of at least 1μs.

7. (new) The system recited in Claim 2, wherein the apparatus for delivery a first pulse further comprises a first of the electrode pair having a first polarity and a second of the electrode pair having a second polarity opposite the first polarity and the apparatus for delivering a second pulse further comprises the first electrode having the second polarity and the second electrode having the first polarity.

8. (new) The system recited in Claim 1, further comprising an apparatus for delivering a third electromagnetic pulse subsequent to the second pulse, the third pulse having a strength and duration insufficient to cause electroporation of the cell and sufficient to cause an electromigration of the molecule toward and into the cell, wherein at least one of the first pulse, the second pulse, and the third pulse comprises an exponentially rising field strength component.

9. (new) The system recited in Claim 1, wherein at least one of the first and the second pulse comprises a series of pulses.

10. (new) The system recited in Claim 1, wherein the first pulse comprises a first polarity and the second pulse comprises a second polarity opposite the first polarity.

11. (new) The system recited in Claim 1, wherein the for positioning the charged molecule comprises a selected from the group consisting of injection, particle bombardment, and jet injection.

12. (new) The system recited in Claim 1, wherein the charged molecule comprises a plurality of different charged molecules.

If the Office is not fully persuaded as to the merits of Applicant's position, or if an Examiner's Amendment would place the pending claims in condition for allowance, a telephone call to the undersigned at (727) 507-8558 is requested.

Very respectfully,

SMITH & HOPEN

Dated: May 25, 2004

By: Molly L. Sauter

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CERTIFICATE OF MAILING
(37 C.F.R. 1.8)

I HEREBY CERTIFY that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on May 25, 2004.

Dated: May 25, 2004

Shelley Butz